FINAL

Public Involvement and Response Plan
during
Installation Restoration Program Activities
at RSA-10

Redstone Arsenal, Alabama
EPA ID : AL2 210 020 742

November 30, 1994

FINAL

PUBLIC INVOLVEMENT AND RESPONSE PLAN DURING INSTALLATION RESTORATION PROGRAM ACTIVITIES AT RSA-10

REDSTONE ARSENAL, ALABAMA
EPA ID: AL2 210 020 742

NOVEMBER 30, 1994

TABLE OF CONTENTS

APPENDICES

EXHIBITS

SECTION 1.0 INTRODUCTION

Redstone Arsenal (RSA), in Madison County, Alabama, is evaluating past waste management practices at its facility under the Defense Environmental Restoration Program (DERP). These studies were previously being performed in accordance with the requirements of the Resource Conservation and Recovery Act of 1976, and Amendments (RCRA), with oversight by the U.S. Environmental Protection Agency (EPA) and the Alabama Department of Environmental Management (ADEM). RCRA requires corrective action at any solid waste management unit (SWMU) which is releasing hazardous constituents to the environment. Two SWMUs (RSA-10 and -107) were identified at Unit 1, the Construction/Debris Landfill and DDT Waste Soils Landfill, respectively. RSA-107 has been addressed under the DDT Migration Abatement Program and is not part of the current activities. The objective of this Public Involvement and Response Plan (PIRP) is to describe the needs and opportunities for public involvement and the associated activities which will be implemented during the performance of the Installation Restoration Program (IRP) activities taking place at RSA-10 at Unit 1.

The U.S. Army Missile Command (MICOM) Environmental Office of Redstone Arsenal has tasked the U.S. Army Corps of Engineers (USACE) Huntsville Division to further investigate the RSA-10 site. The RCRA Facility Investigation (RFI) had been completed and a corrective measure study (CMS) was initiated. Meanwhile, the USACE Savannah District has been tasked to conduct an Interim Remedial Action (IRA) for RSA-10. This involves the design and construction of an Interim Corrective Measure (ICM) to mitigate groundwater contamination. The USACE Mobile District provides coordination and oversight of all USACE activities at Redstone Arsenal.

Redstone Arsenal was included on the Federal Facilities portion of the U.S. EPA's National Priorities List (NPL) on May 31, 1994. While EPA is not the lead agency at a federal facility site, an interagency agreement (IAG) has been negotiated for determining coordination of the Army, EPA and ADEM roles. Community relations, as well as technical

activities at the NPL site, will comply with the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980, as amended.

For the reader's convenience, a fold-out listing of abbreviations and acronyms is provided at the end of this document.

1.1 PLAN PURPOSE

This PIRP supplements the Installation Community Relations Program (CRP) developed for the Army activities which are performed under the DERP at Redstone Arsenal. The PIRP addresses the implementation of those community relations activities which are considered appropriate for a specific site, area or collection of sites. The Installation CRP identifies the MICOM Public Affairs Office at Redstone Arsenal as responsible for implementing the program and presents the contacts and resources established by Redstone Arsenal for use during IRP activities under DERP.

The PIRP is not intended to be an independent document. It is to be used in combination with the established Installation CRP. These two documents provide a comprehensive information and participation program and the specific plan for an effective community involvement program during RSA-10 IRP activities. This PIRP identifies the techniques for addressing the public's information and involvement needs during the decision-making process at RSA-10 by referring to appropriate CRP activities.

The PIRP is designed to establish an effective communications link among the responsible USACE and Redstone Arsenal personnel, and any affected on-post and off-post communities relevant to RSA-10. To provide these communities with opportunities to respond to current and accurate information, the PIRP at RSA-10 is structured around the following goals:

- To identify a single, local point of contact at Redstone Arsenal in order to ensure a consistent source of factual data and consolidation of RSA-10 updates.

- To inform the affected and interested communities about the IRP process of DERP in general and specifically how it relates to the RSA-10 site and the surrounding community.

- To inform the community about activities that have been and are expected to be conducted at the RSA-10 site as well as the schedule for planned activities.

- To address any concerns raised by the community and discuss with the community the data collected from RSA-10 investigations, feasibility studies and other applicable studies.

- To disseminate information to the State of Alabama, Madison County, and other local and federal officials regarding the activities conducted at RSA-10.

- To maintain open communications with appropriate government personnel and community representatives so that they may better inform their constituents.

1.2 PIRP ORGANIZATION

This PIRP provides the following overview:

- Site Background,
- Community Profile and Key Issues of Concern, and
- Public Involvement and Response Plan (Activities and Schedule).

This PIRP is based on documents provided by the USACE, interviews with MICOM Public Affairs and Environmental Office representatives, and telephone interviews with Installation representatives regarding property adjacent to RSA-10.

In order to gain an understanding of the community perceptions regarding environmental restoration at Redstone Arsenal, initial contacts were made with local and state officials for

the development of the Installation CRP. Contacts with public officials were used to identify appropriate agencies, members of the public and other interested parties. Initial listings of public contacts, potentially interested parties, and news media contacts and resources are included as appendices to the Installation CRP. The listings will be expanded with the aid of public notices which invite the public to request inclusion onto the mailing list. No private citizens have been contacted.

1.3 POINTS OF CONTACT

Ms. Pamela Rogers, MICOM Public Affairs Specialist at Redstone Arsenal, oversees and is the point of contact for all community relations and media relations activities at the RSA-10 site. These PIRP activities are coordinated with Mr. Pat Robins, Chief, USACE Mobile District Public Affairs Office and the appropriate USACE district Public Affairs Office. Redstone Arsenal technical representation is provided as needed through Mr. Bill Schroder, MICOM Environmental Office at Redstone Arsenal. Mr. Schroder is the environmental point of contact for all IRP sites at Redstone Arsenal.

The USACE Savannah District has assumed lead responsibility for all technical activities regarding the ICM design at RSA-10. The USACE Huntsville Division has lead responsibility for technical activities during the Feasibility Study (FS) phase.

Contractors at the site do not have authority to provide information to the public. All questions or concerns regarding RSA-10 site conditions are to be referred to Ms. Pamela Rogers. Requests for information concerning the RSA-10 activities and contracts will be coordinated by Ms. Rogers with the appropriate Army representatives identified in Appendix A.

SECTION 2.0 SITE BACKGROUND

2.1 SITE LOCATION AND DESCRIPTION

The Construction/Debris Landfill is designated as SWMU RSA-10. RSA-10 consists of approximately 66 acres located in the central portion of Redstone Arsenal shown on Exhibit 1. Exhibit 2 shows that RSA-10 is bordered to the north by managed woodlands identified as Hunting Area 23. To the south is the U.S. Fish and Wildlife Service (FWS) property with the wetlands of the Wheeler National Wildlife Refuge and the Huntsville Spring Branch of Wheeler Lake. A short segment of the southern boundary abuts Range 28 along the west. The National Aeronautics and Space Administration (NASA) East Test Area is along the western boundary. A 40-foot deep excavated drainage ditch separates RSA-10 from the adjacent inactive sanitary landfill to the east, which was closed in 1973 (see Exhibit 3).

RSA-10 is an unlined landfill facility known as Unit 1 operated by Brown & Associates Management Services, Inc. (BAMSI) until December 1, 1994, when Northrop Grumman receives the installation operations contract. It was originally operated as a sanitary/industrial-type landfill from 1973 until 1992. It was used for the disposal of household, administrative, and industrial wastes; asbestos removed from buildings; and sludge from the three sewage treatment plants operated by Redstone Arsenal. It is now used for disposal of construction debris only. Approximately half of the landfill is inactive and considered closed from activity.

The active portion of the landfill includes several large disposal cells located in the central portion of RSA-10. In the past, the active portion received asbestos-containing building materials, ash from incinerated paper, and dried sludge from the three sewage treatment plants. Previous studies indicate that the southern portion of the active landfill was previously used for the disposal of hospital infectious waste. This active portion of the landfill is operated by Redstone Arsenal under ADEM Permit AL45-03R.

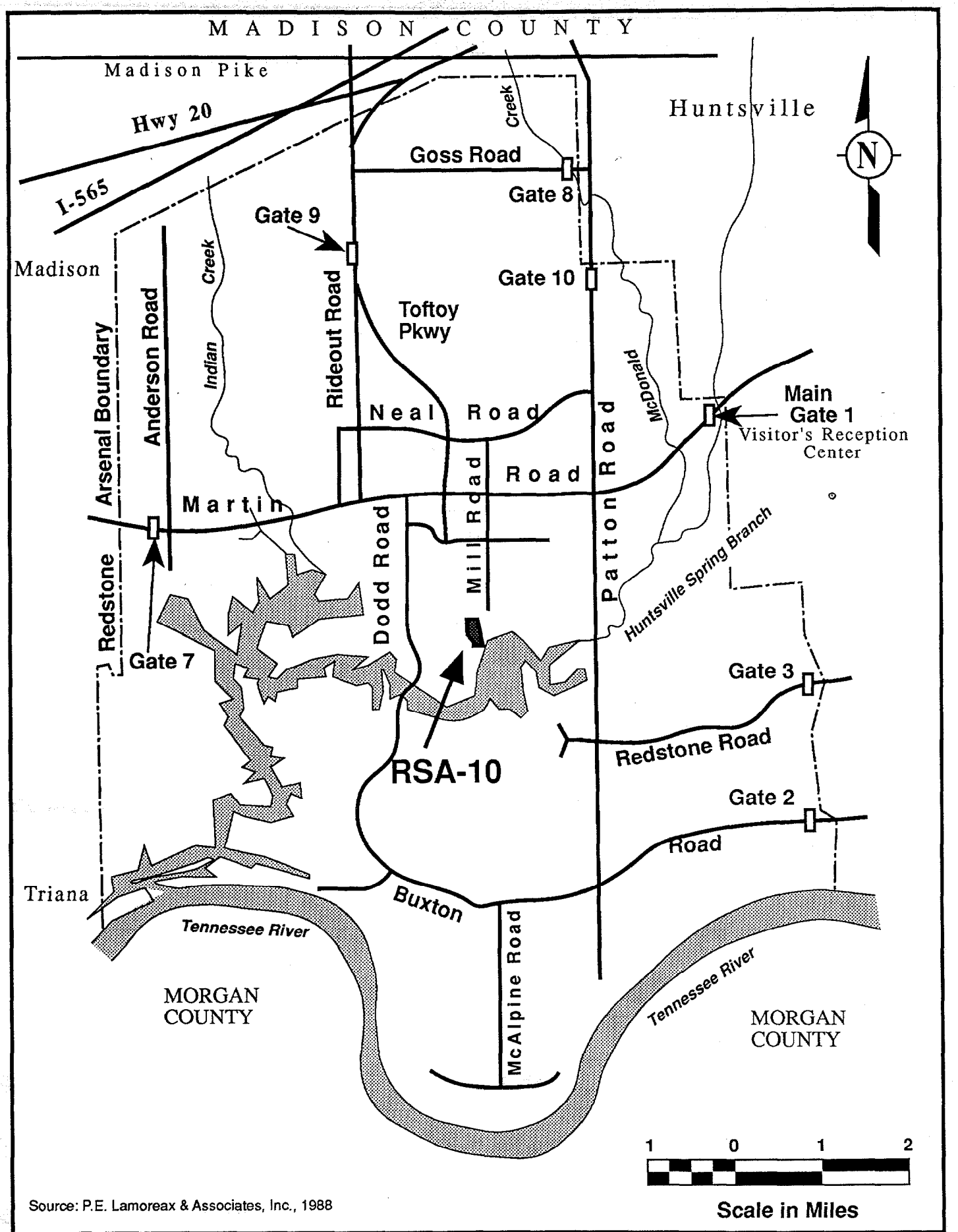
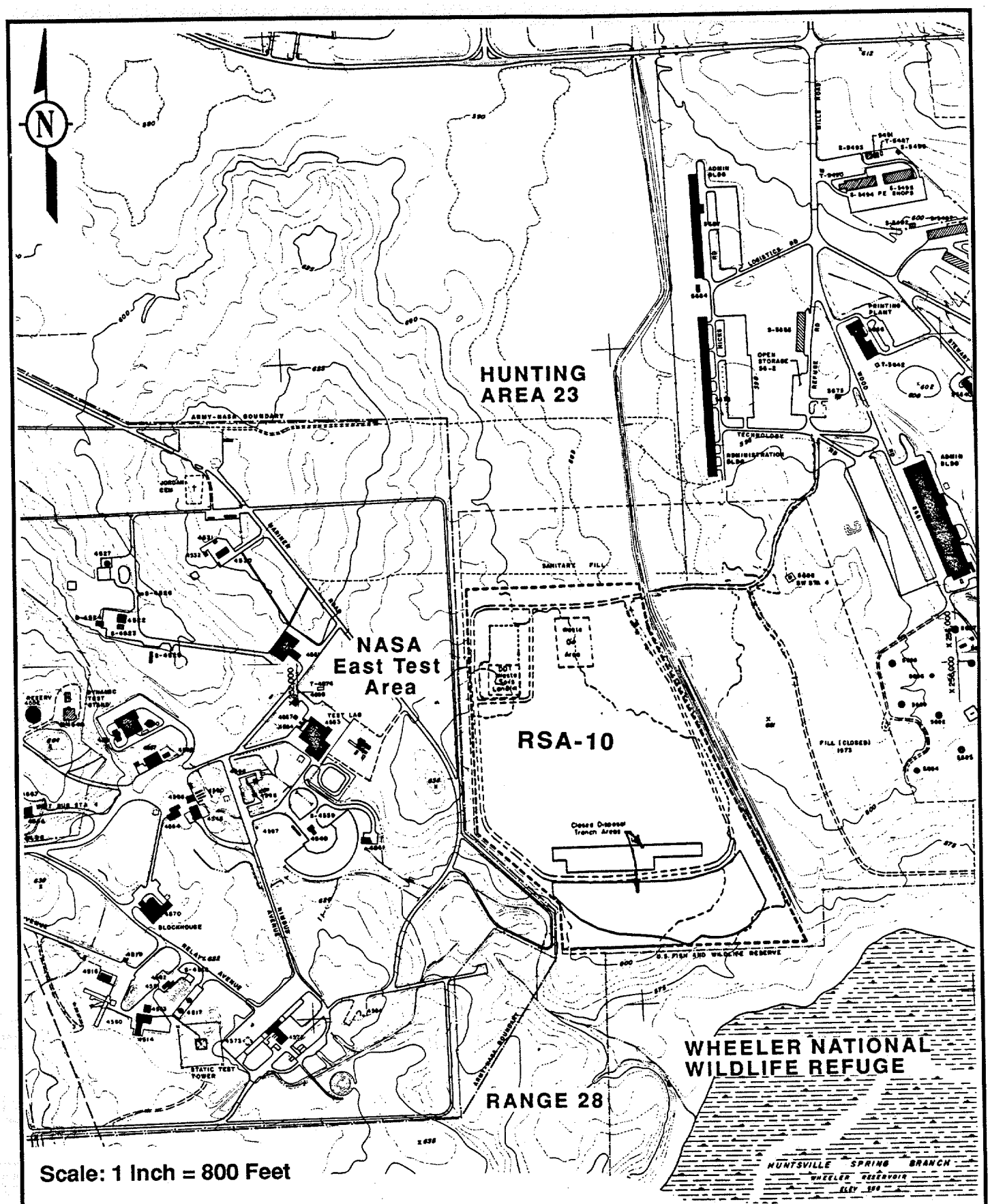
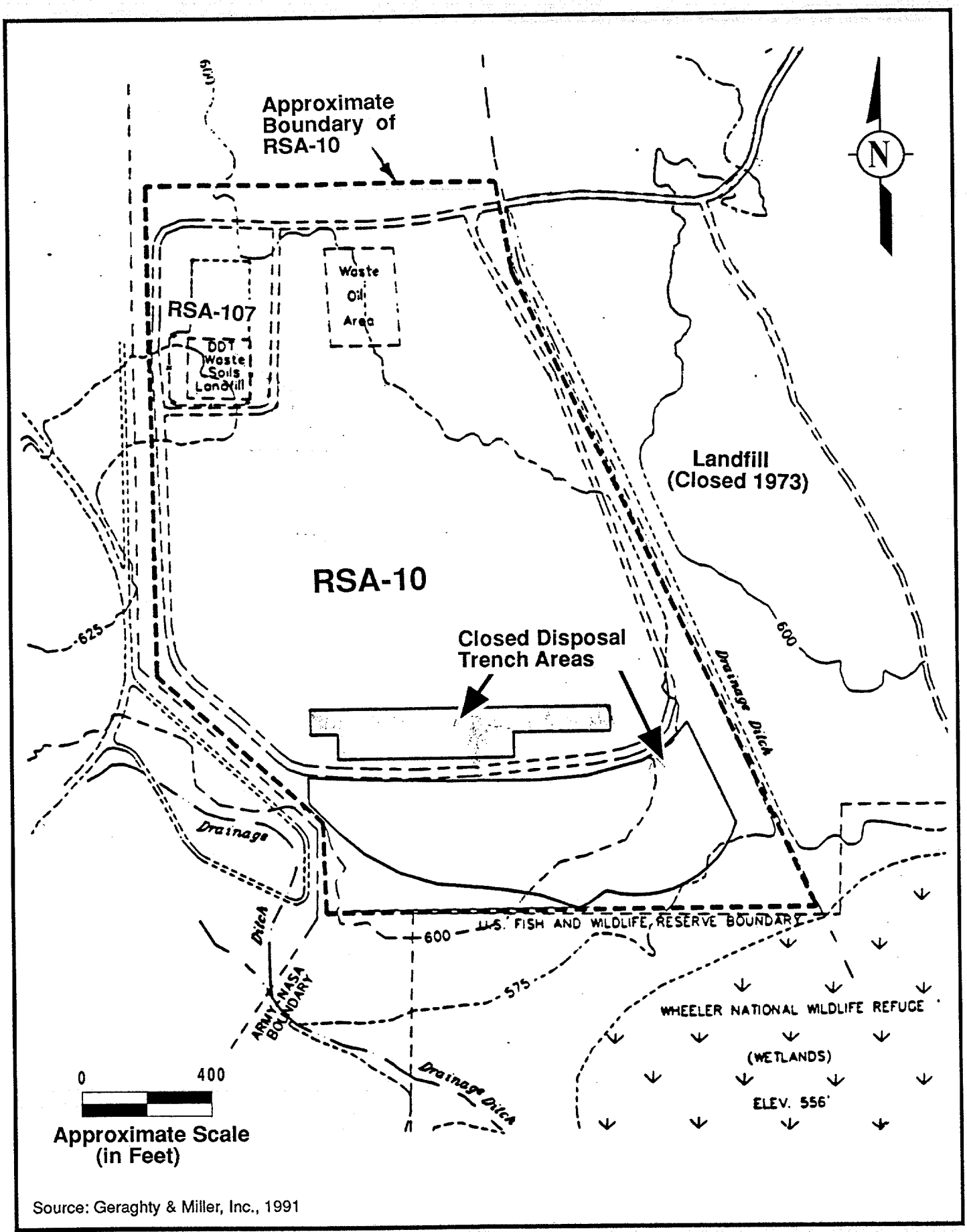


EXHIBIT 1 GENERAL LOCATION OF RSA-10 REDSTONE ARSENAL, ALABAMA



Source: USACE Mobile District, Redstone Arsenal General Site Map, Sheets 8 and 11, October 1986 and Geraghty & Miller, 1991

EXHIBIT 2 DETAIL OF AREA SURROUNDING RSA-10 REDSTONE ARSENAL, ALABAMA



Source: Geraghty & Miller, Inc., 1991

EXHIBIT 3 RSA-10 - CONSTRUCTION/DEBRIS LANDFILL REDSTONE ARSENAL, ALABAMA

Closed portions of the landfill include east-west oriented disposal trenches and a rubble fill located in the southern and southeastern portion of RSA-10, respectively. The three to four disposal trenches are approximately 25 feet wide, 400 feet long, and greater than 20 feet deep. Wastes disposed in the closed trenches included household waste, paper products, waste oil, and construction debris. The land surface of the closed disposal trenches is hummocky and covered with grass. The ground is unstable and subsurface gas can be observed escaping from the ground. Included in the closed landfill portion is a former waste oil pits area, located on the north end of RSA-10. The pits were used to dispose of waste lube oil, boiler plant fuel oil and sludge, oil spill residues, and sewage treatment plant grease trap solids. The previous disposal procedures permitted uncovered and unlined pits and trenches for disposal of sanitary waste and waste oils. Current operating procedures include lining and later covering the landfill with clay to prevent leaching of wastes from the landfill.

2.2 REGULATORY HISTORY AND PREVIOUS STUDIES

Investigations at the Unit 1 site began in 1978 with the installation of monitor wells and lysimeters (a device to measure the percolation of water through soils) for the proposed DDT Waste Soils Landfill (RSA-107). Monitor wells for the inactive Construction/Debris (former sanitary) Landfill (RSA-10) were installed by the Army in 1981. Additional monitor wells were installed around the DDT Waste Soils Landfill in 1984 to replace damaged wells and to supplement the existing monitor well network at both landfills. In 1985, both landfills were classified as a SWMUs by EPA during a RCRA Facility Assessment (RFA).

In January 1986, Redstone Arsenal received a Notice of Violation (NOV) from ADEM based on a review of water quality data from the monitor wells. The NOV cited consistently low concentrations of DDT of less than 1 part per billion (ppb) in samples from wells around the DDT landfill, contaminants consisting of volatile organic compounds (VOCs) and metals in samples from wells down gradient of the landfill, and deficiencies in the monitoring plan.

In response to the NOV, Redstone Arsenal investigated and assessed the extent and nature of groundwater contamination resulting from disposal practices at RSA-10, and evaluated

remedial alternatives. The USACE Huntsville Division, acting on behalf of Redstone Arsenal, contracted P. E. Lamoreaux and Associates (PELA) to perform an RFI-type study at RSA-10 and several other Redstone Arsenal SWMUs. In 1988, PELA installed five overburden monitor wells and four bedrock monitor wells, collected and analyzed groundwater samples from these and the existing monitor wells, and collected and analyzed four soil samples. The results of the study are contained in the report "Remedial Investigation Engineering Report, Redstone Arsenal, Alabama, Unit 1 - DDT and Sanitary Landfills and Unit 2 - Open Burn/Open Demolition Area" (PELA, September 1988).

PELA concluded that the DDT Waste Soils Landfill was successfully containing the DDT waste and was not contributing to any local soil or groundwater contamination. However, soil and groundwater contamination, including VOCs, BNAs, and metals, were detected in the vicinity at the former waste oil pits and closed portions of the landfill.

In September 1989, USACE Huntsville Division contracted Geraghty & Miller (G&M) to perform an RFI at RSA-10. The RFI was conducted in two phases. Results of the Phase I RFI are contained in the 1991 report "Phase I Report, RCRA Facility Investigation at Unit 1, Unit 2, and Selected Unit 3 Areas, Redstone Arsenal, Alabama." Results of the Phase II RFI are presented in the 1992 report "Phase II Addendum, RCRA Facility Investigations at Unit 1, Unit 2, and Selected Unit 3 Areas, Redstone Arsenal, Alabama."

G&M installed 10 new monitor wells during Phase I. No new wells were installed during Phase II of the RFI. During Phase I and II field investigations, G&M collected soil samples, and collected groundwater samples from the 10 newly-installed monitor wells and 29 of the 31 wells previously installed by others.

Soil sample analysis showed elevated levels of VOCs, polynuclear aromatic hydrocarbons (PAHs), and some metals. Groundwater samples contained elevated levels of VOCs, primarily trichloroethene (TCE) and 1,2-DCE (dichloroethene), PAHs, and some heavy metals. Although the potential for exposure and the risk was low, on March 27, 1992,

ADEM issued a second NOV to Redstone Arsenal directing that corrective measures be implemented at areas including RSA-10.

2.3 INTERIM CORRECTIVE MEASURE DESCRIPTION

The USACE Savannah District is responsible for the design and implementation of the ICM at RSA-10. The goal of the ICM is to provide interim remediation until further investigations and various alternatives can be adequately analyzed to determine an appropriate cleanup strategy. The USACE Savannah District has tasked Ebasco Services Incorporated, now known as Foster Wheeler Environmental Corporation, to prepare interim remedial design documents pertaining to the ICM at RSA-10. The ICM at RSA-10 is intended to be a short-term temporary remedy for a groundwater contamination plume that extends across the site. The ICM also will provide important design input data to be used in the final corrective measure and may itself be a major final remediation component.

The ICM for RSA-10 will consist of groundwater extraction using seven extraction wells and pumps selected from 14 pilot hole borings, treatment of extracted groundwater to remove or destroy organic contaminants, and on-site discharge of treated groundwater. The treatment system will consist of air stripping followed by Liquid-Phase Carbon Adsorption. ICM installation, operation, and maintenance will be provided by the construction contractor with minimal oversight requirements from Redstone Arsenal staff, and is expected to continue at least through procurement for final corrective measures. The final corrective measure may or may not utilize the ICM installation, depending upon the most cost effective approach to the final remediation requirements.

2.4 FEASIBILITY STUDY

The USACE Huntsville Division is responsible for the development of the FS for RSA-10. Upon completion of the RFI by G&M in 1992, the Huntsville Division tasked Environmental Science & Engineering, Incorporated (ESE) to perform a "streamlined" CMS. The draft CMS examined 10 areas, including RSA-10. The CMS identified and recommended

alternatives for the final remediation of contaminated media (soil, sediment, and groundwater) in each study area. In light of the NPL listing, EPA has determined that the CMS should be prepared as a FS with a risk assessment. The results of further ICM sampling will be analyzed before the FS proposes the preferred alternative or presents the Proposed Plan. Upon approval by the EPA, ADEM and MICOM, a Draft Final FS and the Proposed Plan will be made available for public review and comment. Public involvement will include a public meeting presentation. The Final FS will address any technical comments presented during the public comment period which were not addressed in the draft version. All comments received during the public comment period will be responded to in the Responsiveness Summary and considered in the EPA's Record of Decision of the final remedial alternative selected.

SECTION 3.0 COMMUNITY PROFILE AND KEY ISSUES OF CONCERN

3.1 COMMUNITY PROFILE

The use of the words "public" or "community" in this document refers to the interested and concerned citizens and the responsible representatives and officials both on and off the Installation.

Since portions of Unit 1 are still active, Northrop Grumman, the landfill operator as of December 1, 1994, is the most interested and involved on-post community with interest in activities at their facility. Northrop is aware of contamination issues at their property and is in daily contact with the MICOM Environmental Office during remediation activities. Northrop operates the landfill from 7:30 a.m. until 4:00 p.m. on Mondays through Fridays. The landfill is accessed from Mills Road traveling south and continuing straight onto Refuge Road. The main entry gate is a new building located across from Technology Road onto the newly paved road. The access is controlled at all times and must be coordinated with Northrop through the MICOM Environmental Office at Redstone Arsenal. The only building which is along Refuge Road is a storage warehouse. The landfill cannot be seen from nearby administration buildings such as Building 5678 on Hicks Road or Building 5681 on Wood Road.

The RSA-10 site is surrounded and obscured by woodlands. The adjacent property uses include timber management with select timber clearing periodically to the east and to the north at Hunting Area 23. The Wheeler National Wildlife Refuge to the southeast is off limits to hunting. Army Range 28 borders the southwest boundary of RSA-10. The NASA activities to the west at the Marshall Space Flight Center are also obscured by the wooded hills. These adjacent property users would also be considered an interested "community" because of the common boundaries.

Any investigations which are conducted outside the RSA-10 fence line must be coordinated with the responsible point of contact. The MICOM Public Affairs and Environmental

Offices at Redstone Arsenal will coordinate any courtesy calls and information mailings regarding field activities and site updates to the points of contact at these facilities. Appendix A provides the listing of contacts regarding RSA-10 activities.

RSA-10 at Unit 1 is well protected from the general public within the installation and buffered by the FWS property boundaries. However, the off-post community which would likely have the most interest in RSA-10 activities is the community of Triana adjacent to the southwest installation boundary. Triana is approximately 7.5 miles downstream of RSA-10 where Indian Creek leaves the installation. Triana has been directly impacted by contamination of surface waters and fish with DDT which was produced on Redstone Arsenal by the Olin Corporation until 1970. Due to the ingestion of DDT-contaminated fish, the health of some residents of Triana is being monitored by the Agency for Toxic Substances and Disease Registry (ATSDR). Affected residents are being treated for DDT contamination by state health agencies. Although this DDT contamination is unrelated to the RSA-10 site, the community will likely be sensitive to, and interested in, the findings and activities on Redstone Arsenal anywhere upstream of their town, particularly where DDT is found. Off-post public contacts are listed in Appendix A of the Installation CRP.

3.2 PREVIOUS COMMUNITY INVOLVEMENT AND COMMUNITY RELATIONS ACTIVITIES

Community relations between Redstone Arsenal and the surrounding communities were established upon recognition of the DDT impacts off-post in Triana in 1978. Then in 1989, additional reports were produced regarding the results of investigations at numerous SWMUs on Redstone Arsenal, including RSA-10. At that time, the Installation Commander met with the Huntsville-Army Community Relations Committee to discuss the status of the SWMUs. Local elected officials and health representatives were also informed. In early April 1989, Redstone Arsenal invited the local newspaper and television reporters for a press briefing and tour of representative sites. Numerous articles were published at that time.

There have been few queries from the public or the press since that time until May 24, 1993 when a news article about the cleanup activities at Redstone Arsenal was published. RSA-10 was among the SWMU sites described, although the site locations and names were not provided. Further articles were released to the public in July 1993 when Redstone Arsenal was proposed to be included on the NPL.

A fact sheet describing the corrective measures being implemented at Redstone Arsenal, including RSA-10 activities, was provided to the public at the Olin DDT public meeting on July 15, 1993 in Triana. This fact sheet is included in Appendix B with several others. Redstone Arsenal has not received any negative publicity or public response to the findings to date. Redstone Arsenal is anxious to present specific plans to the public of any proposed restoration as determined from the findings of the investigations. The first Technical Review Committee (TRC) meeting was held on June 7, 1994.

All questions from the public will be directed through the MICOM Public Affairs Office at Redstone Arsenal so that public information needs may be monitored and news releases may be provided to the public as appropriate. Other personnel identified to date as interested or involved in RSA-10 activities are listed in Appendix A.

3.3 KEY ISSUES OF CONCERN

Community concern regarding contamination at Redstone Arsenal and the associated environmental restoration program generally appears to be low in the Huntsville and Madison County communities. The long-term presence of the installation and the close connection between the mission at Redstone Arsenal and the economy of the area tends to increase the public's acceptance of installation activities. Based on news media response, it appears that the community generally perceives that Redstone Arsenal is working effectively with regulatory agencies and is responding appropriately to identify and remediate contamination at the installation in order to protect the environment and health of the community.

The communities of concern regarding RSA-10 activities is the surrounding on-post property users and the downstream off-post town of Triana. Considering their previous exposure to contaminants emanating from the installation property, Triana residents are concerned that contamination from other activities at Redstone Arsenal could reach their community because they are located near waterways. When contacted about information needs regarding another SWMU on Redstone Arsenal in November 1992, Triana Town Council members were not aware of additional contamination areas at Redstone Arsenal upstream from their community. The Town Council members expressed the desire that their community be kept informed of any potential upstream contamination.

Potential issues during ICM and FS activities at RSA-10 may come from the Triana residents and the federal agencies performing ongoing monitoring in the surrounding waterways. In addition, employees near the RSA-10 site may become interested in knowing about any potential for exposure to contamination. Presently, four concerns have been expressed during conversations with area representatives which relate to RSA-10: use of adjacent forested land, public health, the availability of information, and fish and wildlife protection.

Use of Adjacent Forested Land - RSA-10 is surrounded by woods. Redstone Arsenal has land use management plans in place to manage these resources. The property on the northern boundary is designated as Hunting Area 23. The Game Management Office is responsible for the game and wildlife management in such designated areas. The hunting season is April 1 through 30, and September 1 through February 28. If any activities such as sampling or other investigations need to be performed near the RSA-10 property during these periods, it is necessary to notify the Game Management Office to halt hunting in areas where work is to be performed. Forested areas including Hunting Area 23 are also managed under the Timber Management Plan. Selected timber clearing is done periodically according to the plan. Recent timber clearing was done along the northern boundary of RSA-10 to maintain and upgrade the electrical power lines. The installation forester coordinates all timber clearing with the MICOM Environmental Office to assure that the National Environmental Policy Act (NEPA) requirements are met and that other activities are not impacted. Schedules of activities need to be coordinated with all the applicable offices.

Public Health - Health concerns may become an issue for previous BAMSI or current Northrop employees at RSA-10 and to users of other adjacent property, and is an interest to Triana residents. Some Triana residents participate in an ongoing medical surveillance program funded by Olin Corporation and under the review of the ATSDR. The perception that contamination identified even ten miles upstream of their community presents the potential for additional exposure may add mental stress to an existing reality of impacted health. ATSDR plans to perform a health assessment when the installation is included on the NPL.

Availability of Information - Triana is presently the location of the information repository for the Olin DDT contamination project, and Triana desires an active role in future involvement with Redstone Arsenal. Town representatives have requested that Redstone Arsenal establish an information repository at Triana Town Hall for upstream Redstone Arsenal investigations. The opportunity to readily investigate and ask questions can remove any fear of the unknown. Ready access to documents allows for informed participation in the decision-making process.

Fish and Wildlife Protection - RSA-10 is located in the north boundary of the Huntsville Spring Branch of the Wheeler Reservoir on the Wheeler National Wildlife Refuge. The U.S. Fish and Wildlife Service is interested in assuring that their jurisdiction is protected and wants to be kept informed of site findings and activities.

SECTION 4.0 PUBLIC INVOLVEMENT AND RESPONSE PLAN

4.1 CRP IMPLEMENTATION

The Installation CRP is implemented at RSA-10 through this PIRP. The information and references of the CRP are applicable at RSA-10 except as modified or supplemented by this PIRP. The MICOM Public Affairs Office at Redstone Arsenal is responsible for the implementation of these activities as required by IRP mandates or any IAGs, and as appropriate to meet community needs.

4.2 ACTIVITIES

The following activities are proposed for implementation during the RSA-10 FS and the ICM design and installation at Redstone Arsenal.

4.2.1 Points of Contact

Ms. Pamela Rogers, Public Affairs Specialist, MICOM Public Affairs Office, is the Redstone Arsenal point of contact. In coordination with the appropriate USACE Public Affairs Officer, she will inform the responsible official(s) of activities, findings, and other developments on an ongoing basis throughout the IRP activities at RSA-10. Ms. Rogers will identify the responsible technical contacts and ensure that timely responses are provided to community inquiries. Through this single point of contact, public and media interest can be monitored so that appropriate actions may be taken to meet community needs.

4.2.2 Public Information Repository/Administrative Record

Locations for the on-post and two off-post information repositories identified in Appendix D of the Installation CRP were established by the MICOM Public Affairs Office at Redstone Arsenal. The repositories will contain the administrative record, the compilation of documents, data reports and other information that is important to the status of and decisions

made relative to the site. The file will be updated as additional information becomes available. An index for easy reference will be provided. State and federal regulatory agencies will also maintain an RSA-10 project file.

4.2.3 Public Meetings

A formal public meeting will be scheduled upon completion of the draft final FS currently being developed for Redstone Arsenal by the USACE Huntsville Division. The FS presents alternatives for final remediation of the RSA-10 site. Suggested locations for public meetings are provided in Appendix E of the Installation CRP. Additional locations will be identified if required to meet the specific meeting objectives.

4.2.4 Availability Sessions

Availability sessions may be made available at community centers or at local libraries, and may follow a presentation, or perhaps an introduction made at a local club or other civic organization gathering. Availability sessions are appropriate when small audiences are anticipated for activities such as RSA-10 IRP progress updates. These informal gatherings may be particularly effective to discuss ICM design, installation and operations, or during the public comment period to further discuss individual questions or technical detail of the FS and the "proposed plan" (preferred alternative).

4.2.5 Fact Sheet Distribution

To inform the community of RSA-10 activities and findings during IRP activities, fact sheets may be prepared, as appropriate. The Redstone Arsenal may send fact sheets directly to interested community residents, interested parties, media contacts, and applicable local officials, when appropriate. Anyone wishing to be added to the mailing list may contact the MICOM Public Affairs Office at Redstone Arsenal to request inclusion on the list. Based on the draft FS prepared for final remediation of RSA-10, a "proposed plan" for final remediation will also be presented in a fact sheet format for public comment.

4.2.6 News Releases

Regular status updates of RSA-10 progress should be provided in the installation *Redstone Rocket* and the local *Huntsville Times* newspapers, and other media resources. News releases should support public notices and encourage public comment and participation. During the final ICM design stage of the project, a news release will provide information contained in the design report, future construction plans and the establishment of the information repository with availability of pertinent documents. A second news release shall go out when there is significant activity on site, prior to the beginning of actual construction of the ICM. This release will discuss the components of the ICM and will contain the background and history of RSA-10.

4.2.7 Press Briefings

Press briefings may become appropriate should increased media attention or community concerns be noted. Press visits to the sites may be available but must be scheduled through the MICOM Public Affairs Office at Redstone Arsenal.

4.2.8 Public Notices

Public notices will be prepared during RSA-10 IRP activities to announce availability of documents in the information repository, or pertinent site activities, if necessary. A public notice will be made to announce the public meeting and comment period for response to the draft final FS and the Proposed Plan for final remediation at RSA-10, and later to announce and request response to the Record of Decision.

4.2.9 Public Comment Period/Responsiveness Summary

The public comment period will be announced by a public notice of the availability of the draft final FS and of the Record of Decision. A minimum of 30 days is allowed for written and oral comments to be submitted. The comments and Army responses are summarized in

the Responsiveness Summary and will become part of the administrative record and the Record of Decision.

4.2.10 Technical Review Committee

A Technical Review Committee (TRC) was established in accordance with Army Regulation 200-1 requirements. The first meeting was held on June 7, 1994 and a second is scheduled for December 5, 1994. Chaired by the Commanding Officer, members are drawn from the MICOM Environmental and Public Affairs Offices at Redstone Arsenal, Army agency representatives, state regulatory agencies and local environmental and/or health agencies. Representatives from the existing Huntsville-Army Community Relations Committee, the Triana Review Panel for the Olin DDT contamination site or community groups may also desire TRC membership. On-post personnel and off-post citizens will be selected to represent other community interests as appropriate.

4.2.11 Revision of the PIRP

This RSA-10 PIRP should be reviewed and/or revised when there is a significant change in the involvement or concerns in the community, and upon announcement of the Record of Decision of the final remedial design based on the FS. The revision of the RSA-10 PIRP will also address the Remedial Design and implementation, and community response at the public meeting and during the public comment period. It should include an update and verification of the information within the PIRP, assessment of the effectiveness of the PIRP to date, and determination of appropriate methods for the future roles of the community during final remedial design, installation, operation and maintenance phases. Community interviews should be considered for this RSA-10 PIRP revision.

4.3 SCHEDULE

A tentative schedule for public involvement and response activities is presented in Exhibit 4. This schedule may need to be revised and updated to reflect NPL status, IAG requirements, RSA-10 IRP developments and community needs.

EXHIBIT 4
TENTATIVE SCHEDULE OF
PUBLIC INVOLVEMENT AND RESPONSE ACTIVITIES
AT RSA-10
Redstone Arsenal, Alabama

Activity	Date
Establish Points of Contact	• March 1994
Establish Public Information Repository	• Update as Necessary
Public Notice	• Upon Document Availability in Repository • To Announce Public Meeting/Comment Period • To Announce Record of Decision
Fact Sheet Distribution	• As Required for Technical and Informational Explanations • Notification and Analysis of Proposed Plan
News Release	• In Support of Site Activities • Final Design Stage • Prior to ICM Construction
Public Comment Period/Formal Meeting	• Upon Release of the Draft Final FS
Responsiveness Summary	• After Public Comment Period/Meeting
Availability Session/Gathering	• As Required, Particularly for ICM Design
Technical Review Committee	• Established June 7, 1994
Review/Revise PIRP	• Upon Record of Decision for Remediation Action

APPENDIX A
LISTING OF CONTACTS AND INTERESTED PARTIES FOR RSA-10
Redstone Arsenal, Alabama

This listing is supplemental to the Installation Community Relations Program listing of public contacts and interested parties. A separate mailing list of concerned and interested private citizens is also kept by the MICOM Public Affairs Office at Redstone Arsenal for individuals not wishing to be identified on a public listing.

A. POINT OF CONTACT

Commander
US Army Missile Command
Public Affairs Office
ATTN: AMSMI-IN (Pamela Rogers)
Redstone Arsenal, AL 35898-5020

(205) 842-0561
(205) 955-0133 Fax

B. INSTALLATION REPRESENTATIVES

REDSTONE ARSENAL

Commander
US Army Missile Command Environmental Office
ATTN: AMSMI-EQ (Bill Schroder)
Redstone Arsenal, AL 35898-5349

(205) 876-8607
(205) 876-0887 Fax

Commander
US Army Missile Command Environmental Office
ATTN: AMSMI-EQ (Craig Northridge)
Redstone Arsenal, AL 35898-5349

(205) 955-6967
(205) 876-0887 Fax

Mr. Larry Lewter, Supervisor
Roads and Grounds Branch
Northrop Grumman
Box 8200-0200
Redstone Arsenal, AL 35808

(205) 876-2833

Mr. Matt Shoreham, Facility Manager
Northrop Grumman
Box 8200-0200
Redstone Arsenal, AL 35808

(205) 876-2833

ARMY CORPS OF ENGINEERS

Public Affairs

Commander
US Army Corps of Engineers
Mobile District
ATTN: CESAM-PA (Pat Robins)
109 St. Joseph Street
Mobile, AL 36602

(205) 690-2505
(205) 690-2516 Fax

Program Manager

Commander
US Army Corps of Engineers
Mobile District
ATTN: CESAM-PM-SP (Marlene Nester)
109 St. Joseph Street
Mobile, AL 36628

(205) 690-3431
(205) 690-2327 Fax

Design Technical Contact

Commander
US Army Corps of Engineers
Savannah District
ATTN: CESAS-PM-H (Juana Torres-Perez)
P. O. Box 0889
100 West Oglethorpe Avenue
Savannah, GA 31402-0889

(912) 652-5792
(912) 652-5311 Fax

FS Technical Contact

Commander
US Army Engineer Division
ATTN: CEHND-PM-EP (Dorothy Richards)
P. O. Box 1600
106 Wynn Drive
Huntsville, AL 35805-1957

(205) 955-3088
(205) 955-4664 Fax

ADJACENT PROPERTIES

Commander
U.S. Army Missile Command Forester
ATTN: AMSMI-MP-PR (Jesse Horton)
Redstone Arsenal, AL 35898-5000

(205) 876-3122

Commander
U.S. Army Missile Command — (205) 876-4868
ATTN: AMSMI-RA-CF-CR-OR (Bill Moreland) — (205) 842-2188
Redstone Arsenal, AL 35898-5000
Game Management Office regarding
Hunting Area 23 near RSA-10

Dr. Rebecca McCaleb — 205-544-4367
Code AEO1
NASA Environmental Management Office
Marshall Space Flight Center, AL 35812

Dom Amatore — 205-544-0034
Code CA10 — 205-544-5852 Fax
NASA Public Affairs Office
Marshall Space Flight Center, AL 35812

C. INTERESTED PARTIES

See Installation CRP for complete listing. No additional organizations, agencies or individuals have been identified at this time with particular interest in RSA-10.

APPENDIX B
INSTALLATION RESTORATION PROGRAM FACT SHEETS
Redstone Arsenal, Alabama

1 - Corrective Measures at Units 1 & 2, Area F and RSA-G, July 1993

2 - Corrective Measures at Unit 3/Area F, May 1994

3 - Corrective Measures at Unit 2, May 1994

4 - Corrective Measures at RSA-49, October 1994

5 - Corrective Measures at RSA-10, October 1994

Redstone Arsenal

MADISON COUNTY, ALABAMA

INSTALLATION RESTORATION PROGRAM FACT SHEET JULY 1993 CORRECTIVE MEASURES AT UNITS 1 & 2, AREA F AND RSA-G

This fact sheet is one in a series designed to inform residents and local officials of the Army's installation restoration program and interim corrective measures at Redstone Arsenal.

ARSENAL DESCRIPTION

Redstone Arsenal (RSA) is located in north central Alabama in the southwestern portion of Madison County. RSA is bounded by the City of Huntsville to the north and east, the cities of Madison and Triana to the west, and the Tennessee River to the south. RSA encompasses approximately 38,300 acres. The National Aeronautics and Space Administration (NASA) leases 1,841 acres for the George C. Marshall Space Flight Center. The Wheeler National Wildlife Refuge owns 4,100 acres and the Tennessee Valley Authority owns 2,900 acres within the boundaries of RSA.

RSA is under the jurisdiction of the U.S. Army Materiel Command, the major Army command responsible for insuring the weapons, equipment, and logistic readiness for the Army.

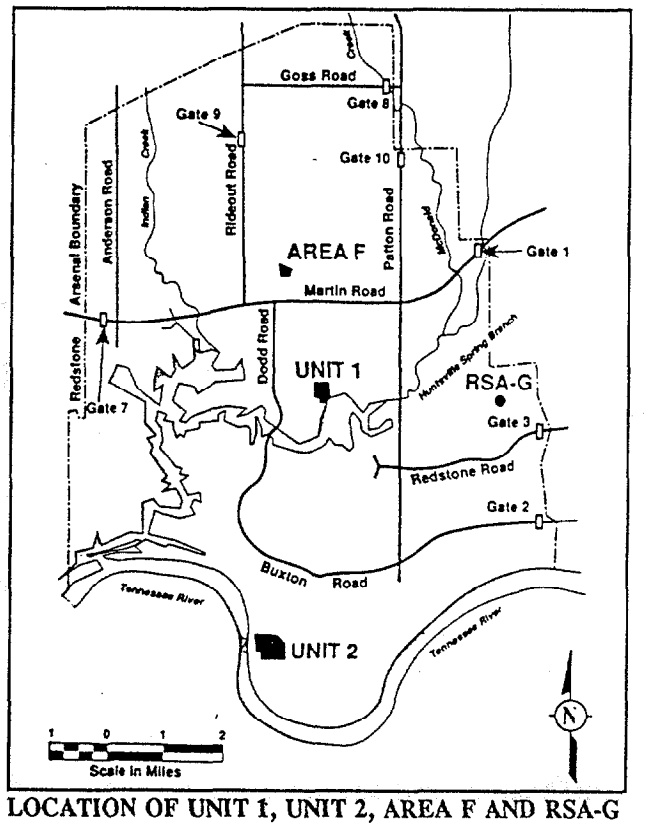
PURPOSE OF INTERIM CORRECTIVE MEASURES AT RSA

The U.S. Army has been evaluating past hazardous waste management practices at Redstone Arsenal. Studies are being performed to evaluate the practices in accordance with the requirements of the Resource Conservation and Recovery Act of 1976 (RCRA).

RCRA requires identification and corrective action at any solid waste management unit (SWMU) located on the installation which is releasing hazardous constituents to the environment. A SWMU is defined as any discernable waste management unit at a RCRA facility from which hazardous constituents might migrate, irrespective of whether the unit was intended for the management of solid and/or hazardous waste. This does not include units in which wastes have not been managed, product storage areas, or accidental spills from production areas.

In addition to RCRA, Congress established the Defense Environmental Restoration Program (DERP) in 1986. Under DERP, the Department of Defense (includes the Army) is required to identify, assess and remediate environmental problems, to protect the health and safety of installation personnel and the public, and to protect the quality of the environment. The portion of DERP applicable to real property currently controlled by the Army is the Installation Restoration Program (IRP).

In accordance with RCRA and DERP, Redstone Arsenal is implementing numerous corrective measures and interim corrective measures (ICMs) at SWMUs identified on the installation. These SWMU corrective actions are being performed under the IRP. This fact sheet addresses the ICMs to be implemented at four SWMUs: Unit 1, Unit 2, Area F and RSA-G.



LOCATION OF UNIT 1, UNIT 2, AREA F AND RSA-G

INTERIM CORRECTIVE MEASURE SITES

Unit 1 (RSA-10)

This SWMU is an active landfill comprised of two disposal facilities: a former sanitary landfill which is currently an active inert landfill; and the closed DDT Waste Soils Landfill. Unit 1 consists of approximately 68.5 acres bordered by woods to the north, another closed landfill to the east, wetlands and the Wheeler National Wildlife Refuge to the south, and NASA-leased land to the west. The area has been used for a variety of

wastes including household waste, waste oil, infectious waste, installation debris, asbestos, and ash from incinerated paper. A special SWMU constructed for the disposal of soils containing DDT waste is also located within the boundaries of this Unit. Contaminants identified in the groundwater include chlorinated hydrocarbons, benzene, toluene, ethylene and xylene, and various metals and pesticides.

Investigations at Unit 1 began in 1989 and a RCRA Facility Investigation (RFI) was completed in 1992. On March 27, 1992, the Alabama Department of Environmental Management (ADEM) issued a Notice of Violation to RSA directing that corrective measures be implemented. An ICM Design is currently being prepared to provide immediate treatment of contaminated groundwater using an air stripper followed by liquid phase carbon adsorption.

A Corrective Measure Study (CMS) also is underway for Unit 1. A CMS identifies alternatives for final corrective measures at a given site. The draft CMS for Unit 1 is under review by the Huntsville Division of the U.S. Army Corps of Engineers (USACE). The preferred alternative for final correction is groundwater treatment using advanced oxidation by ultraviolet light and hydrogen peroxide (UV/H_2O_2), and soil treatment by excavation/on-site incineration and capping.

Unit 2 (RSA-12, 13, 14, 131, 132, 133)

Unit 2 is an active open burn/open detonation (OB/OD) area located on the south end of RSA. This area is used for the disposal of explosives and explosive-contaminated materials. There are actually six SWMUs at Unit 2: the OB pans (RSA-12); unlined OB areas (RSA-13); waste burn trenches (RSA-14); OD area (RSA-131); former popping furnace (RSA-132); and former rocket washout pad (RSA-133). Explosives and volatile organic compounds (VOCs) were found in the soil layers at RSA-13 and -14, explosives were found in the sediment layer at RSA-14, and VOCs were found in the groundwater which exceed minimum action levels.

Environmental studies at Unit 2 began in 1989 and the RFI was completed in 1992. On March 27, 1992, ADEM issued a Notice of Violation to RSA directing that corrective measures be implemented. An ICM Design is currently being reviewed by the Savannah District of the USACE which will provide immediate treatment of contaminated groundwater using advanced oxidation with UV/H_2O_2. Additionally, a draft CMS is under review by the Huntsville USACE identifying alternative final corrective measures. The preferred alternative for final correction is groundwater treatment by air stripping and soil treatment by excavation/on-site incineration.

Unit 3/Area F (RSA-49)

Area F occupies approximately five acres in the center of RSA. Area F consists of three closed ponds used in the 1940s for the disposal of arsenic-contaminated waste from manufacturing facilities for Lewisite, a chemical blistering agent. Rubble and industrial wastes were used to fill the impoundments prior to the ponds being closed. The ponds were covered in 1977 and planted with grass and pine trees. Arsenic was found in the groundwater and soil, and polynuclear aromatic hydrocarbons (PAHs) were found in the soil.

Environmental studies began in 1989. The RFI was completed in 1992. On March 27, 1992, ADEM issued a Notice of Violation to RSA directing that corrective measures be implemented at Area F. An ICM Design is currently being prepared which will provide for placement of a clay cap over the former ponds and a fence around the area. A draft CMS is under review by the Huntsville USACE. The preferred final correction alternative for groundwater is pretreatment only, and for soil is no further action.

RSA-G

RSA-G is the area surrounding the Thiokol Degreaser at Building 7664. RSA-G is within the Thiokol Complex, a government-owned contractor-operated facility, located in the southeast portion of RSA. Groundwater and soil at this site is contaminated, primarily with trichloroethene (TCE).

Environmental studies at RSA-G began in 1989. Phase II of the RFI is now nearing completion. There is no outstanding ADEM Notice of Violation for RSA-G. An ICM Design is in progress which will provide immediate treatment of contaminated groundwater using advanced UV/H_2O_2 oxidation. To date, a CMS has not been initiated.

REQUEST FOR PUBLIC PARTICIPATION

A Community Relations Plan (CRP) or Public Involvement and Response Plan (PIRP) is required for all DERP properties that have sites included on or proposed for inclusion on the National Priorities List (NPL). Redstone Arsenal was placed on the proposed NPL on June 23, 1993 (Federal Register Vol 58, No 119). A CRP/PIRP is currently being prepared for the four sites specifically identified in this fact sheet: Unit 1, Unit 2, Area F and RSA-G. The CRP/PIRP will be implemented throughout the interim corrective measure design at these sites. The CRP/PIRP will then be reviewed and/or revised as appropriate to provide for public involvement throughout the corrective action phases.

Upon availability of a draft final CMS, a press release and public notice will announce the availability of the document during a 45-day public comment period including a public meeting. The public will be asked to

comment on the preferred and other alternatives from among those which were studied for the corrective action. Public meetings will be hosted by the MICOM Public Affairs Office and supported by the responsible USACE. Local, state and Army representatives will be invited. All issues will be discussed and the public will have an opportunity to ask questions directly to a panel of site investigators, as well as to the attending representatives.

PUBLIC INFORMATION

A public information repository has been established for public access to the data and reports regarding site investigations, studies, and other activities conducted under the RSA IRP. Reports are released to the repository in final form after regulatory review. Press releases and fact sheets will be included in the collection The collection will be updated as information becomes available. The information contained in the repository is available through ADEM and on-site at the MICOM Public Affairs Office at Redstone Arsenal. The primary off-site location is:

Huntsville-Madison County Library
915 Monroe Street, SW
Huntsville, Alabama 35804 (205) 532-5957

The information may also be obtained through the:

Town Hall, Town of Triana
640 Sixth Street
Madison, Alabama 35758 (205) 772-0151

A public announcement will be made whenever copies of CRP/PIRP, ICM Design reports, CMS reports and other pertinent documents are available for public review at the information repositories. The local Huntsville newspapers will also be used for press releases and public announcements.

The Army encourages the public to visit the information repositories and attend any public meetings to become more knowledgeable about the environmental studies at RSA. If you did not receive this fact sheet in the mail and would like to be place on a mailing list to receive future notices regarding the DERP activities, please complete the form at the bottom of this page and mail to the address below.

FOR FURTHER INFORMATION:

The following Army representative has been identified as the point of contact regarding Redstone Arsenal remediation activities under the DERP Program:

Mr. Ed Peters, Public Affairs Specialist
Public Affairs Office
U.S. Army Missile Command
Redstone Arsenal, Alabama 35898-5020

(205) 842-0560

Prepared for the U.S. Army Corps of Engineers, Savannah District, and Redstone Arsenal.

REQUEST FOR INCLUSION ON THE MAILING LIST
REDSTONE ARSENAL DERP

Please print your mailing address here and return to the MICOM Public Affairs Office of Redstone Arsenal. You will receive notice of public meetings or environmental program status as it becomes available.

My particular interests and/or concerns are:

Name_____

Affiliation_____

Address_____

City_____State_____Zip_____

Telephone (optional)_____

Comments:

Redstone Arsenal

MADISON COUNTY, ALABAMA

MAY 1994

INSTALLATION RESTORATION PROGRAM
FACT SHEET No. 2

CORRECTIVE MEASURES
AT UNIT 3/AREA F

This fact sheet is part of a series designed to inform residents and local officials of the Army's ongoing installation restoration program at particular SWMU sites.

INTRODUCTION

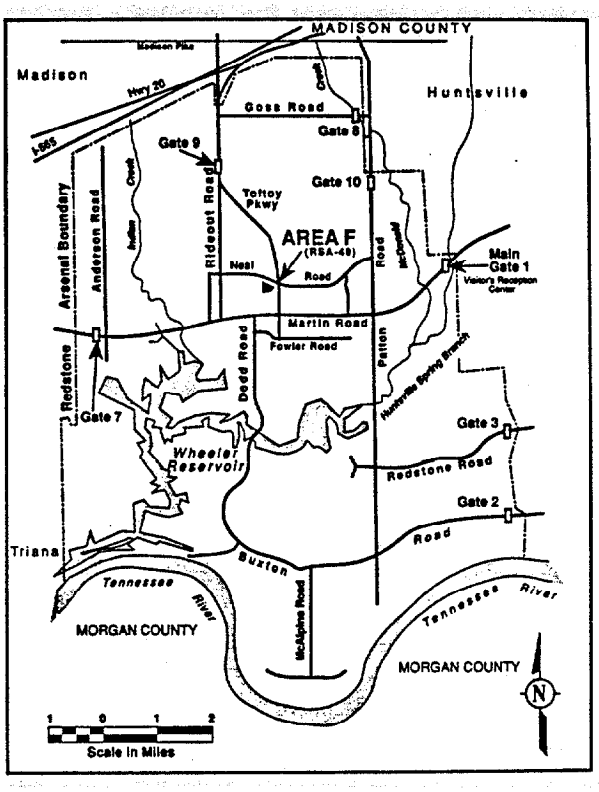
The initial fact sheet, published in July 1993, introduced the public to the Army's Defense Environmental Restoration Program (DERP) which was established in 1986, and the Installation Restoration Program (IRP) activities at several sites at Redstone Arsenal. This fact sheet is an update of the corrective measure status at one of the sites: Unit 3/Area F. All documents mentioned are available at the information repositories listed.

ARSENAL DESCRIPTION

Redstone Arsenal (RSA) is located in north central Alabama in the southwestern portion of Madison County. Redstone Arsenal is under the jurisdiction of the U.S. Army Materiel Command (AMC), the major Army command responsible for insuring the weapons, equipment, and logistic readiness for the Army. Of the approximately 38,300 acres, the Wheeler National Wildlife Refuge occupies 4,100 acres within the boundaries of Redstone Arsenal. The National Aeronautics and Space Administration (NASA) leases 1,841 acres for the George C. Marshall Space Flight Center.

The U.S. Army has been evaluating past hazardous waste management practices at Redstone Arsenal. Studies are being performed to evaluate the practices in accordance with the requirements of the Resource Conservation and Recovery Act of 1976 (RCRA), required at all active facilities managing hazardous materials.

Redstone Arsenal is implementing interim corrective measures (ICMs) at several sites to address the immediate needs for environmental restoration. This fact sheet addresses the ICM and related activities at Unit 3 / Area F, solid waste management unit (SWMU) RSA-49.



LOCATION OF UNIT 3/AREA F

SITE DEVELOPMENTS AT UNIT 3/AREA F

Unit 3/Area F occupies approximately five acres in the center of Redstone Arsenal designated as SWMU RSA-49. Area F consists of three closed ponds used in the 1940s for the disposal of arsenic-contaminated waste from manufacturing facilities for Lewisite, a chemical blistering agent. Rubble and industrial wastes were used to fill the impoundments prior to the ponds being closed. The ponds were covered in 1977 and planted with grass and pine trees. Arsenic was found in the groundwater and soil, and polynuclear aromatic hydrocarbons (PAHs) were found in the soil.

Clay Cap Design

The draft ICM design for Area F was submitted to the U.S. Army Corps of Engineers (USACE), Savannah District in July 1993. The design originally called for the placement of a temporary 2-foot deep clay layer, called a cap, over the former ponds with a fence around the area. Review has determined that the design now will include the placement of a clay cap conforming to the requirements of RCRA. The RCRA cap will be multi-layer, including geotextile, drainage, and biobarrier layers in addition to the clay. The RCRA cap will provide additional protection against infiltration, erosion, instability and vermin. A RCRA cap would increase the cost only a small percentage in the short-term and would save money in the long-term for the final corrective measure at Area F. However, some shallow soil contamination has been detected outside the proposed boundary of the originally proposed clay cap, and the U.S. Environmental Protection Agency (EPA) wants Redstone Arsenal to address this issue. Therefore, more data is necessary to determine the exact boundary for the RCRA cap.

Soil Sampling at Area F

The additional data needed to determine the extent of soil contamination for capping purposes and the extent of shallow soil contamination outside the proposed RCRA cap boundary will be collected by field sampling. The scope of the field program basically involves the installation of soil borings and sampling of soil for arsenic from the boreholes. Arsenic concentrations exceeding natural levels for soil in the area will be considered contaminated. This information will be used to complete the ICM design. It will also be cost effective to determine the required extent of a final RCRA cap at the same time the soil sampling is conducted to determine the extent of contamination.

In addition to installing and sampling soil borings, the field program will include the digging of test pits in an uncontaminated area adjacent to Area F. The purpose of the test pits is to view and physically test the clay material in that area to see if it is suitable for use as clay liner material for the RCRA cap at Unit 3/Area F.

At the conclusion of the field program, a technical report will be prepared which presents the results of the program with conclusions and recommendations for completion of the ICM design.

Request for Public Participation

Upon availability of a draft final Corrective Measure or Feasibility Study (CMS/FS) for Unit 3/ Area F, a press release and public notice will announce the availability of the document and a 30-day public comment period including a public meeting. The public will be asked to comment on the preferred and other alternatives from among those which were studied for the corrective action. The public notice will be placed in the local newspapers and through a direct mailing requesting community involvement to discuss the findings at a public meeting. These meetings will be hosted by the AMC Missile Command (MICOM) Public Affairs Office and supported by the responsible USACE. Local, state and Army representatives will be in attendance. All issues will be discussed and the public will have an opportunity to ask questions directly to a panel of site investigators, as well as to the attending representatives.

Public Information

A public information repository has been established for public access to the data and reports regarding site investigations, studies, and other activities conducted under the RSA IRP. Reports are released to the repository in final form after regulatory review. Press releases and fact sheets are also included in the collection and will be updated as information becomes available. The information contained in the repository also is available on-site at the MICOM Public Affairs Office at Redstone Arsenal. The primary off-site location is:

Huntsville-Madison County Library
915 Monroe Street, SW
Huntsville, Alabama 35804
(205) 532-5957

The information will also be maintained at the:

City Hall, City of Triana
Madison, Alabama 35758
(205) 772-0151

Public announcements are made whenever copies of community relations information, ICM Design reports, CMS/FS reports and other pertinent documents are available for public review at the information repositories. The Army encourages the public to visit the information repositories and attend any public meetings to become more knowledgeable about the environmental studies at Redstone Arsenal.

FOR FURTHER INFORMATION:

The following Army representative has been identified as the point of contact for the Army:

Ms. Pam Rogers, Public Affairs Specialist
Public Affairs Office
U.S. Army Missile Command
Redstone Arsenal, Alabama 35898-5020
(205) 842-0561

If you did not receive this fact sheet in the mail and would like to be place on a mailing list to receive future notices regarding the DERP activities, please complete the form below and mail to the adjacent address.

REQUEST FOR INCLUSION ON THE MAILING LIST FOR REDSTONE ARSENAL DERP

Please print your mailing address here and return to the MICOM Public Affairs Office of Redstone Arsenal. You will receive notice of public meetings or environmental program status as it becomes available.

My primary interests/concerns are:

Name_____

Affiliation_____

Address_____

City_____State_____

Zip Code_____

Telephone (optional)_____

Comments:

Prepared for the U.S. Army Corps of Engineers, Savannah District, and Redstone Arsenal.

Redstone Arsenal

MADISON COUNTY, ALABAMA

MAY 1994 | INSTALLATION RESTORATION PROGRAM FACT SHEET No. 3 | CORRECTIVE MEASURES AT UNIT 2

This fact sheet is part of a series designed to inform residents and local officials of the Army's ongoing installation restoration program at particular SWMU sites.

INTRODUCTION

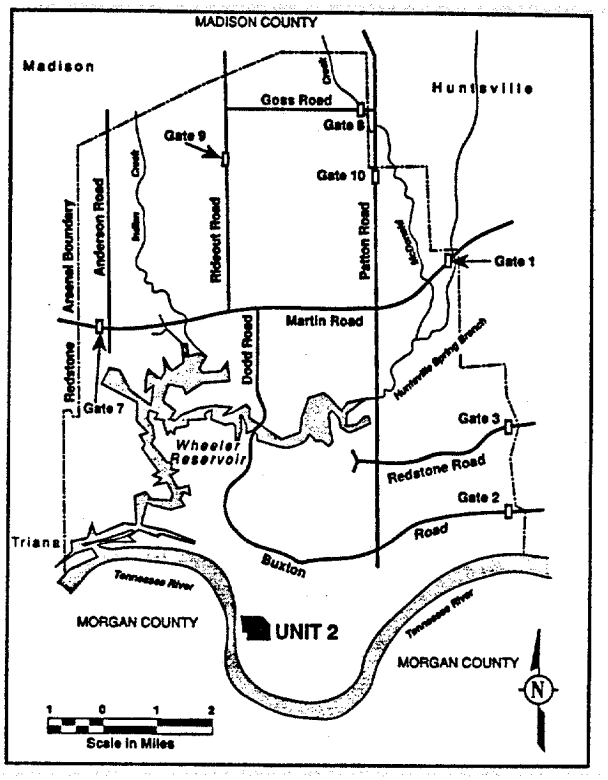
The initial fact sheet, published in July 1993, introduced the public to the Army's Defense Environmental Restoration Program (DERP) which was established in 1986, and the Installation Restoration Program (IRP) activities at several sites at Redstone Arsenal. This fact sheet is an update of the corrective measure status at one of the sites: Unit 2. All documents mentioned are available at the information repositories listed.

ARSENAL DESCRIPTION

Redstone Arsenal (RSA) is located in north central Alabama in the southwestern portion of Madison County. Redstone Arsenal is under the jurisdiction of the U.S. Army Materiel Command (AMC), the major Army command responsible for insuring the weapons, equipment, and logistic readiness for the Army. Of the approximately 38,300 acres, the Wheeler National Wildlife Refuge occupies 4,100 acres within the boundaries of RSA. The National Aeronautics and Space Administration (NASA) leases 1,841 acres for the George C. Marshall Space Flight Center.

The U.S. Army has been evaluating past hazardous waste management practices at Redstone Arsenal. Studies are being performed to evaluate the practices in accordance with the requirements of the Resource Conservation and Recovery Act of 1976 (RCRA), required at all active facilities managing hazardous materials.

Redstone Arsenal is implementing interim corrective measures (ICMs) at several sites to address the immediate needs for environmental restoration. This fact sheet addresses the ICM and related activities at Unit 2, solid waste management units (SWMUs) RSA-12, -13, -14, -131, -132, -133.



LOCATION OF UNIT 2

SITE DEVELOPMENTS AT UNIT 2

Unit 2 is an active open burn/open detonation (OB/OD) area located on the south end of Redstone Arsenal. This area is used for the disposal of explosives and explosive-contaminated materials. There are six SWMUs at Unit 2: the OB pans (RSA-12); unlined OB pads (RSA-13); waste burn trenches (RSA-14); OD area (RSA-131); former popping furnace (RSA-132); and former rocket washout pad (RSA-133). Explosives and volatile organic compounds (VOCs) found in the soil layers at RSA-13 and -14, explosives

found in the sediment layer at RSA-14, and VOCs found in the groundwater exceed minimum action levels.

Environmental studies at Unit 2 began in 1989 and the RCRA Facility Investigation (RFI) was completed in 1992. On March 27, 1992, the Alabama Department of Environmental Management issued a Notice of Violation to Redstone Arsenal directing that corrective measures be implemented.

Test Well Installation at Unit 2

Because of the complex hydrogeology of the limestone bedrock beneath the Unit 2 site, it currently is very difficult to predict if the extraction wells proposed in the draft ICM design will penetrate a productive zone (a fracture in the bedrock), and if the aquifer will yield the predicted flows and contaminant concentrations.

The additional data needed to complete design will be collected during a field effort. The scope of the field program basically involves the installation of the extraction wells proposed for the ICM design, and the subsequent collection of chemical and physical data from those wells. The physical data that will be obtained from the drilling and testing effort includes:

- Sediment and bedrock characteristics to allow for optimum well screen design
- Aquifer hydraulics data to be used to project horizontal and vertical zones of capture and to project the quantity of water to be remediated.
- Groundwater quality data to be used to project future treatment requirements.

Chemical analyses of extracted groundwater obtained during the field program will provide data necessary to sufficiently characterize the groundwater contamination at the Unit 2 site. In particular, water quality parameters such as total suspended solids and concentrations of iron, metals and organics detected in previous investigations are needed to determine the magnitude of pretreatment required for the ICM system.

In addition, a pilot scale treatment system will be used during he field effort to treat extracted groundwater. Operational data from the pilot treatment system will establish design criteria for the full-scale ICM system.

At the conclusion of the field program, a technical report will be prepared which contains the results, conclusions and recommendations for completion of the ICM design.

Request for Public Participation

Upon availability of a draft final FS for Unit 2, a press release and public notice will announce the availability of the document and a 30-day public comment period including a public meeting. The public will be asked to comment on the preferred and other alternatives from among those which were studied for the corrective action. The public notice will be placed in the local newspapers and through a direct mailing requesting community involvement to discuss the findings at a public meeting. These meetings will be hosted by the AMC Missile Command (MICOM) Public Affairs Office and supported by the responsible USACE. Local, state and Army representatives will be in attendance. All issues will be discussed and the public will have an opportunity to ask questions directly to a panel of site investigators, as well as to the attending representatives.

Public Information

A public information repository has been established for public access to the data and reports regarding site investigations, studies, and other activities conducted under the RSA IRP. Reports are released to the repository in final form after regulatory review. Press releases and fact sheets are also included in the collection and will be updated as information becomes available. The information contained in the repository also is available on-site at the MICOM Public Affairs Office at Redstone Arsenal. The primary off-site location is:

Huntsville-Madison County Library
915 Monroe Street, SW
Huntsville, Alabama 35804
(205) 532-5957

The information will also be maintained at the:

City Hall, City of Triana
Madison, Alabama 35758
(205) 772-0151

Public announcements are made whenever copies of public involvement plans, ICM Design reports, CMS/FS reports and other pertinent documents are available for public review at the information repositories. The Army encourages the public to visit the information repositories and attend any public meetings to become more knowledgeable about the environmental studies at Redstone Arsenal.

FOR FURTHER INFORMATION:

The following Army representative has been identified as the point of contact for the Army activities regarding Redstone Arsenal remediation activities under the DERP Program:

Ms. Pam Rogers, Public Affairs Specialist
Public Affairs Office
U.S. Army Missile Command
Redstone Arsenal, Alabama 35898-5020
(205) 842-0561

If you did not receive this fact sheet in the mail and would like to be place on a mailing list to receive future notices regarding the DERP activities, please complete the form below and mail to the adjacent address.

REQUEST FOR INCLUSION ON THE MAILING LIST FOR REDSTONE ARSENAL DERP

Please print your mailing address here and return to the MICOM Public Affairs Office of Redstone Arsenal. You will receive notice of public meetings or environmental program status as it becomes available.

My primary interests/concerns are:

Name_____

Affiliation_____

Address_____

City_____State_____

Zip Code_____

Telephone (optional)_____

Comments:

Prepared for the U.S. Army Corps of Engineers, Savannah District, and Redstone Arsenal.

Redstone Arsenal

MADISON COUNTY, ALABAMA

OCTOBER 1994 | INSTALLATION RESTORATION PROGRAM FACT SHEET No. 4 | CORRECTIVE MEASURES AT RSA-49

This fact sheet is part of a series designed to inform residents and local officials of the Army's ongoing installation restoration program at particular sites.

INTRODUCTION

This fact sheet addresses the interim corrective measure (ICM) and related activities at solid waste management unit (SWMU) RSA-49, also known as Area F, the Arsenic Impoundment Area.

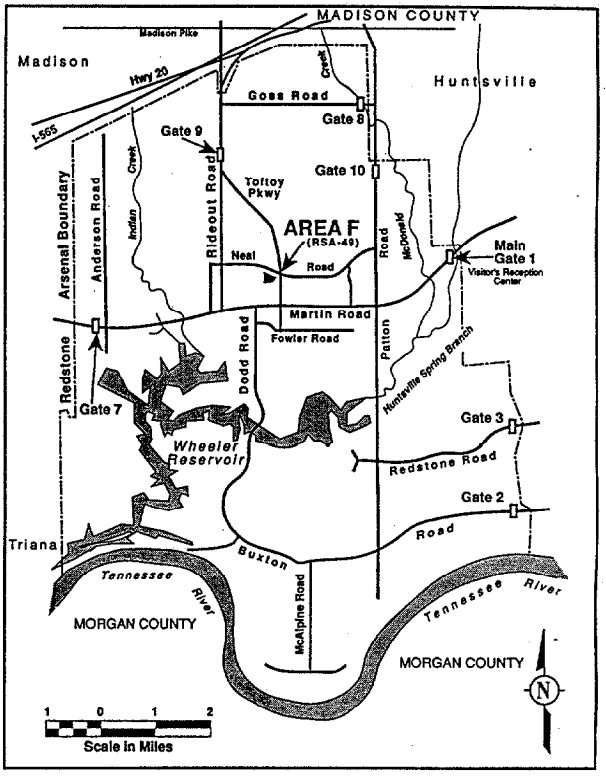
RECENT SITE DEVELOPMENTS AT RSA-49

The field sampling program was completed in July 1994 and a technical report was prepared which presents those results. The report addresses the Resource Conservation and Recovery Act (RCRA) design requirements for a clay covering or "cap" with conclusions and recommendations for completion of the ICM design.

SUMMARY OF SOIL SAMPLING AT RSA-49

Additional data needed to determine the extent of soil contamination and the extent of shallow soil contamination outside the proposed cap boundary was collected by field sampling during May 1994. This involved the installation of 52 soil borings and sampling of soil for arsenic from the boreholes. Additional sampling was performed in July 1994 at the southwest corner of the site and at the ditch to the south of RSA-49.

According to U.S. Environmental Protection Agency (EPA), arsenic concentrations exceeding the proposed 80 mg/kg RCRA clean-up level for soil in the area is considered contaminated. However, due to the potential for inconsistent distribution of the contaminants, the Army chose 40 mg/kg arsenic to be the action level. Under this action, soils with arsenic levels above 40 mg/kg will either be covered by the cap or will be excavated and either placed as fill material under the new cap or removed off-site as a hazardous waste for treatment or disposal in a RCRA landfill.

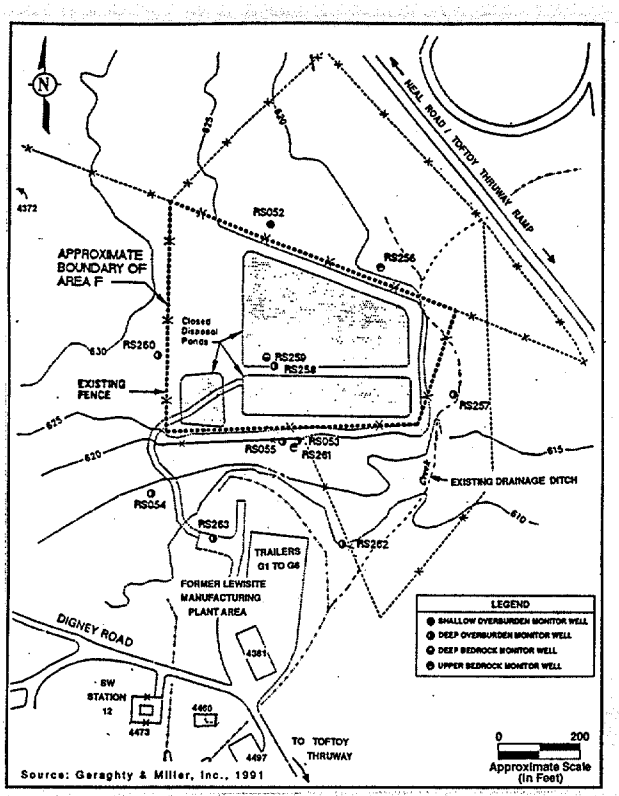


SITE PREPARATION

The ICM consists of removing existing vegetation at the site and constructing the clay cap. Everything within the limits of the multilayer cap will be covered with a minimum of two feet of the selected clay, 18 inches of cover soil and 6 inches of top soil. The existing chain link fence with barbed wire will be removed, as will the five-strand barbed wire field fence about 15 feet to the north of the site. A new chainlink fence with a locking gate will be installed to prevent trespassing. The field fence will be reinstalled outside the replaced fence.

Contaminated soils requiring excavation are limited primarily to the drainage ditch south of the site.

Further studies will be performed to develop the Feasibility Study (FS) and to present a proposed plan for final remediation for agency and public review.



PUBLIC INFORMATION

A public information repository has been established for public access to the data and reports regarding site investigations, studies, and other activities conducted under the RSA IRP.

The information contained in the repository is available on-site at the MICOM Public Affairs Office at Redstone Arsenal. The primary off-site location is:

Huntsville-Madison County Library
915 Monroe Street, SW
Huntsville, Alabama 35804
(205) 532-5957

The information will also be maintained at the:

City Hall, City of Triana
Madison, Alabama 35758
(205) 772-0151

The Army encourages the public to visit the information repositories and attend any public meetings to become more knowledgeable about the environmental studies at Redstone Arsenal.

Upon availability of a draft final FS for RSA-49, a press release and public notice will announce the availability of the document and a 30-day public comment period including a public meeting.

FOR FURTHER INFORMATION:

The following Army representative has been identified as the point of contact for the Army:

Ms. Pam Rogers, Public Affairs Specialist
Public Affairs Office
U.S. Army Missile Command
Redstone Arsenal, Alabama 35898-5020
(205) 842-0561

If you did not receive this fact sheet in the mail and would like to be placed on a mailing list to receive future notices regarding the IRP activities, complete this form and mail to the above address.

REQUEST FOR INCLUSION ON THE MAILING LIST FOR REDSTONE ARSENAL IRP

Please print your mailing address here and return to the MICOM Public Affairs Office at Redstone Arsenal. You will receive notice of public meetings or environmental program status as it becomes available.

Name_____ Telephone(optional)_____

My primary interests/concerns are:

Affiliation_____

Address_____

City_____ State___ Zip Code____

Prepared for the U.S. Army Corps of Engineers, Savannah District, and Redstone Arsenal.

Redstone Arsenal

MADISON COUNTY, ALABAMA

OCTOBER 1994

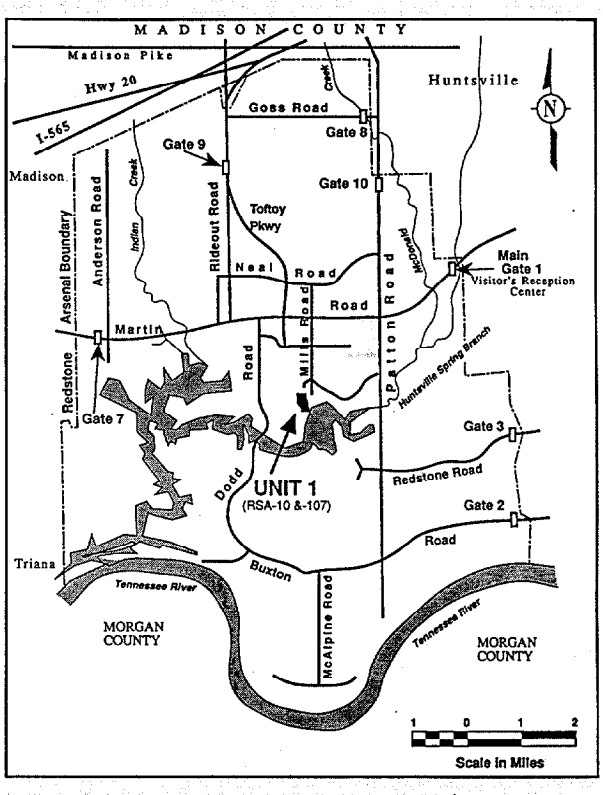
INSTALLATION RESTORATION PROGRAM
FACT SHEET No. 5

CORRECTIVE MEASURES
AT RSA-10

This fact sheet is part of a series designed to inform residents and local officials of the Army's ongoing installation restoration program (IRP) at particular sites.

INTRODUCTION

This fact sheet addresses the interim corrective measure (ICM) and related activities at Unit 1, solid waste management unit (SWMU) RSA-10. RSA-10 is a former sanitary landfill and currently serves as a landfill for construction/demolition debris.



RECENT SITE DEVELOPMENTS AT RSA-10

The ICM design is currently being prepared to provide immediate treatment of contaminated groundwater at the landfill using an air stripper followed by liquid phase carbon adsorption. Extraction wells will first be installed to remove the contaminated groundwater beneath this landfill. The air stripper will then remove many of the contaminants from the groundwater passing through this system. These contaminants include chlorinated hydrocarbons: benzene, toluene, ethylene and xylene. Air stripping allows these volatile organic compounds (VOCs) to be released from the water and dissipate into the air. After passing through the air stripper, any metals and pesticides in the water will attach themselves to the carbon (charcoal) particles in the liquid phase carbon adsorption unit. The water will then be released to a permitted discharge point.

TEST WELL INSTALLATION AT RSA-10

Because of the complex hydrogeology of the limestone bedrock beneath the site, it currently is very difficult to predict if the extraction wells proposed in the draft ICM design will penetrate a productive zone (a space created by a fracture in the bedrock), and if the aquifer will yield the predicted flows and contaminant concentrations.

The additional data needed to complete the design will be collected during a field effort. The scope of the field program basically involves the installation of the extraction wells proposed for the ICM design, and the subsequent collection of chemical and physical data from those wells. The physical data that will be obtained from the drilling and testing effort includes:

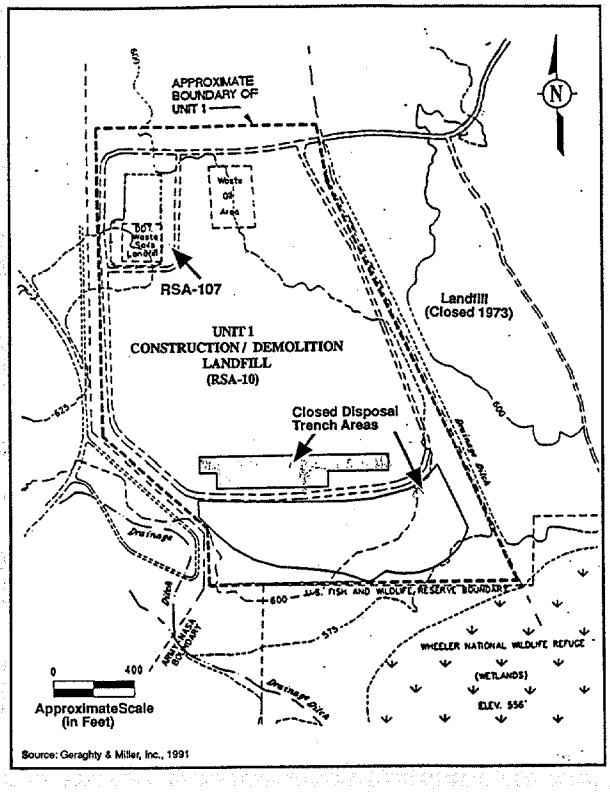
- Sediment and bedrock characteristics to allow for optimum well screen design

- Aquifer hydraulics data to be used to project horizontal and vertical zones of capture and to project the quantity of water to be remediated.

- Groundwater quality data to be used to project future treatment requirements.

Chemical analyses of extracted groundwater obtained during the field program will provide data necessary to sufficiently characterize the groundwater contamination at the RSA-10 site. In particular, water quality parameters such as total suspended solids and concentrations of iron, metals and organics detected in previous investigations are needed to determine the magnitude of pretreatment required for the ICM system.

At the conclusion of the field program, a technical report will be prepared which contains the results, conclusions and recommendations for completion of the ICM design.



Further studies will be performed to develop the Feasibility Study (FS) and to prepare a proposed plan for final remediation for agency and public review.

PUBLIC INFORMATION

A public information repository has been established for public access to the data and reports regarding site investigations, studies, and other activities conducted under the RSA IRP. The information contained in the repository is available on-site at the MICOM Public Affairs Office at Redstone Arsenal. The primary off-site repository is located at:

Huntsville-Madison County Library
915 Monroe Street, SW
Huntsville, Alabama 35804
(205) 532-5957

The information will also be maintained at the:

City Hall, City of Triana
Madison, Alabama 35758
(205) 772-0151

The Army encourages the public to visit the information repositories and attend any public meetings to become more knowledgeable about the environmental studies at Redstone Arsenal.

Upon availability of a draft final FS for RSA-10, a press release and public notice will announce the availability of the document and a 30-day public comment period including a public meeting.

FOR FURTHER INFORMATION:

The following Army representative has been identified as the point of contact for the Army:

Ms. Pam Rogers, Public Affairs Specialist
Public Affairs Office
U.S. Army Missile Command
Redstone Arsenal, Alabama 35898-5020
(205) 842-0561

REQUEST FOR INCLUSION ON THE MAILING LIST FOR REDSTONE ARSENAL IRP

I would like to be added to the mailing list to receive future notices of public meetings or environmental program status as it becomes available from the MICOM Public Affairs Office at Redstone Arsenal.

Name/
Affiliation_____

Telephone(optional)_____
My primary interests/concerns are:

Address_____

City_____ State____ Zip_____

Prepared for the U.S. Army Corps of Engineers, Savannah District, and Redstone Arsenal.

ABBREVIATIONS AND ACRONYMS

ADEM	Alabama Department of Environmental Management
AMC	U.S. Army Materiel Command
ATSDR	Agency for Toxic Substances and Disease Registry, Public Health Service
BAMSI	Brown & Associates Management Services, Inc.
BNA	Base/neutral/acid extractable
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act of 1983, as amended (also know as Superfund)
CMS	Corrective Measure Study, RCRA
CRP	Community Relations Program
DCE	dichloroethene
DDT	dichloro-diphenyl-trichloroethane (insecticide)
DERP	Defense Environmental Restoration Program
EPA	U.S. Environmental Protection Agency
ESE	Environmental Science & Engineering, Incorporated
FS	Feasibility Study, CERCLA
FWS	U.S. Fish and Wildlife Service
G&M	Geraghty & Miller, Inc.
IAG	Interagency Agreement
ICM	Interim Corrective Measure
IRA	Interim Remedial Action
IRP	Installation Restoration Program, DERP
MCL	Maximum Concentration Limits
MICOM	U.S. Army Missile Command of AMC
NASA	National Aeronautic and Space Administration
NOV	Notice of Violation
NPL	National Priorities List, CERCLA
PAH	polynuclear aromatic hydrocarbon
PELA	P. E. Lamoreaux and Associates
PIRP	Public Involvement and Response Plan
ppb	parts per billion
ppm	parts per million
RCRA	Resource Conservation and Recovery Act of 1976
RFA	RCRA Facility Assessment
RFI	RCRA Facility Investigation
RSA	Redstone Arsenal
SWMU	solid waste management unit
TCE	trichloroethene
TRC	Technical Review Committee
USACE	U.S. Army Corps of Engineers
USAEHA	U.S. Army Environmental Hygiene Agency
VOC	Volatile Organic Compound